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SCS ENGINEERS

March 10, 2006

Mr. Ray Purtee, P.E.
Project Manager,
City of San Diego Environmental Services Division
9601 Ridgehaven Court, Suite 310
San Diego, California 92123-1636

RE: Cover Letter to Technical Advisory Committee (TAC) Comment Responses for Draft Mission Bay Landfill Site Assessment Report

Dear Mr. Purtee:

As you are aware, written comments were requested and received from TAC members and from the community in response to the Draft Report referenced above.

These comments and comment responses are submitted herein to the City and hence to the TAC. After review of this document by the City and the TAC, and receipt of their feedback, a revised executive summary will be prepared and distributed to the TAC. After any additional comments have been received, the revised responses to comments and executive summary will be incorporated into the report and a final report will be produced and sent to the two lead enforcement agencies for the landfill: the City of San Diego Solid Waste Local Enforcement Agency and the Regional Water Quality Control Board (an agency within the California Environmental Protection Agency).

This comment and response package includes each set of comments from TAC members and the community, followed by the corresponding responses. The numbers in the right margin of several sets of comments correspond to the numbered responses provided after each set of comments. If the comments were numbered in one complete set by the reviewer (or if section and page numbers were provided), the numbers provided have been used. We have attempted to place the comments in the approximate order received, with the exception of one initial emailed comment from Barry Pulver that has been placed with his other comments.

Should you have any questions regarding the comments, responses, or report, please do not hesitate to call the undersigned at (858) 571-5500.

Respectfully,
SCS Engineers

Tessa A. McRae, Ph.D., P.G. 6582
Vice President

Enclosures

COMMENT RESPONSES

As an introduction, it seems appropriate to provide a brief timeline of the study. The initial scope for the study was provided by the TAC, and responded to in our proposal. After the contract was awarded, the review of historical data was conducted and then the draft workplan was prepared and distributed to the TAC. Comments on the draft workplan were received and responses were prepared and compiled in an addendum document with the health and safety plans. The workplan was approved by the oversight agencies. Fieldwork was conducted and input was received from the TAC during the fieldwork phase. After fieldwork was completed, data interpretation commenced. Presentations were made to the TAC on the scope of the HRA and ERA and the scopes were revised based on TAC input. The draft report was prepared and submitted on August 31, 2005, and comments were received until January 31, 2006. Discussion ensued at TAC meetings in the fall, and it was agreed that the comments from the various contributors would be addressed at one time and compiled in an addendum.

Addition of Data Evaluation Appendix

Based on a number of comments regarding quality assurance/quality control issues, a new appendix has been prepared in response. Appendix 4.22 discusses the evaluation of the field and laboratory data and includes four tables. The Appendix is included at the end of this addendum and will be referred to in our responses to several of the comments. Appendix 4.23 has been prepared to respond to one of Mr. Sarabia's comments, and is provided as an attachment.

Other attachments to this document include:
Discussion on thallium issues and associated table.
Table summarizing historical documents regarding waste discharge in San Diego.
Table of information on the groundwater monitoring wells
SCS Engineers personnel matrix
Revised versions of Tables 4.22 and 4.23 as distributed in September 2005.

All of these documents will be incorporated in the final report, either as additional appendices and tables, or within the text of the report.

Comments on SCS Report on Mission Bay Landfill

Initially submitted by David Huntley to Ray Purtee, 9/8/2005

1. The groundwater level contour maps that are presented in the report are "snapshots" of the water table at specific times (high tide, low tide, during a flood). While those maps are interesting, they do not provide any measure of the net direction of groundwater flow (or direction of solute transport) in a tidally impacted transient system, like Mission Bay Landfill. The effect of those transients are seen by example in wells MBW2 and SCS4, where gw elevations are actually reported as lower at high tide than at low tide (because of time lag). The correct way to assess net direction of groundwater flow and solute transport direction is to calculate an average water level for each piezometer over the period of a tidal cycle (25 hrs), and contour the resulting average water level. This exercise should be done for several dates through the monitoring period, including days that had extreme high/low tides, times that had moderate tides, and the period of flooding in the SD river. Those maps should either replace or augment the wl contour maps currently in the report.

2. As noted in the meeting, there clearly needs to be a strong executive summary in the front of the report that highlights the findings of the study. This is likely to be the only part of the report that is read by 99% of the people who are faintly interested in the landfill, so a significant effort needs to be invested in those 3-4 pages.

3. There are several "hotbutton" issues that need to be directly and explicitly addressed in this report. Though that might not be done in most or all reports or journal articles, this report is not driven by the normal mechanisms - it is driven by a political need to address this landfill and put it to rest (or remediate if that proved necessary). One hotbutton issue is Thallium (because it keeps being brought up over and over again). Because of that, it needs to be addressed explicitly and separately. The tables in the report (from the most recent sampling) show ND results for Thallium. Yet TAC members and people in public groups keep referring to toxic levels of Thallium in the landfill. So, where does that statement come from? Was there one hit of Thallium in a monitoring well preceeded and followed by ND (that can be discussed in terms of laboratory error)? Was it a soil sample in one area at one depth? Or multiple soil samples. Why did this survey not find it - because it did not sample the same wells or locations? Because, if real, it would be very limited extent (depth and lateral)? The past evidence of Thallium needs to be described and put in context of previous and subsequent gw analyses (if it was a gw hit) or the number of ND soil samples (if it was a soil sample) and proxiimity to ND values.

4. Clearly, one of the big questions is, based on inventory reports of large amounts of solvent dumping in the landfill, where did it go? There needs to be discussion in the report about this issue. Specifically, the reports of previous dumping need to be cited and volumes and ranges in volumes need to be given, so the readers of the report don't have to rely on outside citations of that information. Second, what are the hypotheses as to why we do not see significant quantities in the gw samples (the 3 that come to mind are a) it was dumped

somewhere else in a the "MB Landfill", but the boundaries delineated in this report do not include some other, disconnected areas that were not identified in this study, b) the waste was actually disposed of by midnight dumping (SD river or other convenient locations, or c) it has been dissolved or biodegraded). Each of the hypotheses put forth (those above plus any others you have) needs to be discussed. The possibility of other parts of the landfill outside the area you studied clearly needs to be addressed through your analysis of landfill records (for the time coincident with the solvent disposal records) and aerial photos. The hypothesis that it has been dissolved or bio-degraded can be addressed by calculation. Given the hydraulic gradient and a reasonable estimate (or range) of K, and the solubility of the solvent mixture, how much mass could have been dissolved from the landfill. Is that anywhere close to the estimated dumping? For bio-degradation, you note (I think) that the methane concentrations are such that methanogenic conditions exist in the landfill, which is ideal for bio-degradation of TCE,TCA, etc. The literature should have some pretty good estimates of rates of degradation, given strong methanogenic conditions. Given those rates, could the mass of solvent have been broken down in the time available? In other words, you need to support your argument that the solvent is not seen today because it has all broken down, not just assume the MB TAC is going to accept that at face value. The same discussion should also address the absence of breakdown products.

5. Does the landfill gas survey in some locations suggest a greater extent of trash than shown in figure 6.1? There are a number of soil gas samples with very high methane (in the 40 % range) that are located outside of the 5 ft contour of trash thickness, yet there are no boreholes to preclude trash in those areas of high methane. Perhaps there should be another contour (zero?) that estimates the extent of trash, based on both the "no trash encountered" borehole info and the soil gas (high methane concentrations).

6. Along the same lines as above, I recall some discussion at the TAC meetings about some very high methane (or H2S) readings in Seaworld. I don't recall if that was part of the SCS data set or part of a study that Seaworld did for the Splash Mtn. If it was not part of the SCS data, shouldn't the other data be incorporated in this report? What do those high values say about the landfill boundary? Are they within the bounds delineated in this report? Do the other data (if it is other data) suggest other parts to the landfill?

7. While I am looking at figure 6.8, what is the purpose of showing the location of the Woodward-Clyde test pits on that figure? Did they measure methane in the test pits? (if so, no values are plotted). If the test pits are unrelated to methane, they should be removed from the figure, as they create the impression of a lot of data, without any data to support that impression.

More comments will be forthcoming.

Dave Huntley

Additional Comments re: SCS Mission Bay Landfill Report

Prepared by Dave Huntley (10/20/05)

1. Section 5 (Historical Review) seems entirely out of place after the results of field work. Why isn't the Historical Review placed before the results of field work. The extent of the landfill, as estimated from aerial photos, is the framework within which the placement of wells and soil borings (the field work) was determined. 8

2. The discussion of the magnetometer results refers to Sea World Drive, Friars Road, "suspect areas", and several monitoring wells. It would greatly aid this section if those were identified on Figure 4.1. Specifically, the locations of borings and wells (direct push or wells) should be on Figure 4.1 so the reader can understand the geographic relation between the geophysical anomalies and the soil/water samples. The "suspect" are south of Sea World Dr and Friars (p. 45) should be located on Fig 4.1. Finally, the area "East of Sea World Drive" (last bullet on p. 45, where soil cover is thinner) should be identified on the figure. 9

3. It is unclear to me how the soil borings aided in the delineation of the landfill boundaries. For example, B4, located in the landfill has no indication of landfill waste in the geologic log. Nor does B8, also located within the landfill boundary. Obviously, B5, B6, and B7, all located west of the identified boundary, also do not show waste in the log. How was the landfill boundary identified? 10

4. Paragraph 1, page 97 indicates that the water level map shown as figure 4.8 is a time-average contour map. But the same paragraph states that it depicts water levels on 10/16/04 at 12:00 pm, which implies that it is an instantaneous water level map. Which is it? 11

5.The discussion in section 6.2.2 should be combined with discussion in 4.12. Several of the paragraphs (e.g. last paragraph of p. 97) are entirely redundant with earlier discussion. 12

6. 4th paragraph of p. 97 does not make any sense or communicate any information. If there is a point to be made there, it needs to be re-written so that it makes that point and supports it with evidence. 13

7. Section 7 is redundant with several sections in the report prior to section 7. This report needs a good editor to entirely re-organize it to eliminate the redundancies. The overall site setting should be read once, not three times in three separate sections. The results of soil and water sampling should be read once, not two times, etc, etc. 14

Responses to Comments from Individuals

David Huntley, PhD

1. The processing of the tidal survey data is described in Section 6.2.2, and is in accordance with the method that Dr. Huntley describes. It is clear that this should be moved to section 4.12 so that it is explained prior to the first reference to the figures showing groundwater elevations. We apologize for the confusion.

2. We agree, and will revise the executive summary after responses to this document have been received so that it discusses all the major findings of the report.

3. The issue of historical thallium data is addressed in an attachment to this document. The data were reviewed in the context of the research and presentation by Chuck Budinger during his membership of the TAC.

4. As you state, one of the big questions is, based on inventory reports of large amounts of solvent dumping in the landfill, where did it go? The following discussion addresses this issue and will be included in the report. The historical documents provided by the City, and posted on the TAC website, have been reviewed and pertinent information, including volumes and ranges in volumes, compiled in a table which is attached to this document. It should be noted that the wastes described in these documents are primarily acids of various kinds, alkaline solution waste, cyanide wastes, magnesium wastes, and paint and oily wastes. There is only one reference to "combustible cleaning solvents (from dry cleaners)." Therefore, it is possible that the quantity of solvents placed in the landfill is not as great as has been discussed, because the majority of the industrial wastes appear to have been other chemicals as listed above and in the attached table.

   Regarding your suggested hypotheses (in *italics*, and our additional suggestion) as to why we do not see significant quantities in the groundwater samples, our initial comments are as follows:

   a) *It was dumped somewhere else in the "MB Landfill", but the boundaries delineated in this report do not include some other, disconnected areas that were not identified in this study.* The extensive review of photographs, maps and other historical documents did not suggest the possibility of other parts of the landfill outside the area studied other than addressed in Section 5 of the draft report. No other City-operated dumps were found in the vicinity of the study area.

   b) *The waste was actually disposed of by midnight dumping (San Diego river or other convenient locations.)* We have no knowledge of midnight dumping operations which, by their very nature, are undocumented.

   c) *It has been dissolved or biodegraded.* Given the lack of information regarding quantities of solvents potentially placed in the landfill, we consider it impractical to

perform calculations to address this possibility. Such calculations would require an extensive number of assumptions, including estimates of the solubility of the unknown solvent mixture. If solvents were actually a small component of the disposed wastes, that would explain the lack of breakdown products.

d) It is still where it was buried. It is possible that the waste is degrading and migrating at such a slow rate that after 40 years large concentrations of contaminants are not seen in our sampling and analysis of soil, sediment, groundwater or landfill gases. If this is the case, the wastes do not appear to be leaving the site in quantities of concern.

5. An estimated zero waste thickness contour can be added to the figure. However, please note that elevated gas concentrations are not themselves indicative of refuse locations, because gas migrates laterally.

6. The implications are that the parking lot will act as an impermeable (almost) cap that will serve to retard (if not stop) vertical gas migration. This is the likely reason that higher methane values were encountered in this area. Please note that elevated gas concentrations are not themselves indicative of refuse locations.

7. The test pits were placed on Figure 6.8 for completeness and easy reference of locations between the various figures. To our knowledge methane was not measured in the test pits. The pits will be removed from the figure for the final report.

8. Section 5 will be moved to become Section 3 in the final report per the discussion at the TAC meeting on December 9, 2005.

9. Figure 4.1 will be revised to include the location of borings and wells, as well as an indication of the "suspect areas" south and east of Sea World Drive.

10. The landfill boundary was primarily identified from the historical data. Many of the borings were installed around the edge of the landfill in an attempt to refine the estimated boundary. If waste was found in a boring, the boundary was moved outside that boring location. However, if no waste was found in a boring the boundary was not moved inside the boring because there are at least three reasons why waste might not have been observed in a boring: a) the boring might have penetrated a zone of soil between the areas of waste, b) the boring might have penetrated some zone(s) of waste but collected no recognizable waste due to decomposition in the landfill, or c) the boring might have penetrated some zone(s) of waste but collected no recognizable waste due to the small diameter of the sampler.

11. The water elevation map (Figure 4.8) reflects the time-averaged data from 12 hours and 25 minutes both before and after the actual time given.

12. As requested during the TAC meeting on August 31, 2005, the title of Section 6 will be changed to Discussion of Results. Section 4 is intended to be description of

fieldwork performed and of the actual results collected. The two sections 4.12 and 6.2.2 will be reviewed to reduce redundancy and check that their contents reflect the intended scope of Sections 4 and 6.

13. The paragraph beginning "The extent of saturated refuse…" will be rewritten to address this comment.

14. During the final report edit, we will endeavor to remove redundancies by reorganizing sections and consolidating discussions where appropriate.

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October 13, 2005

TO: Councilwoman Donna Fry
Mission Bay Technical Advisory Committee
SCS Engineers

FROM: Jeoffry B. Gordon, MD, MPH

SUBJECT: Comments on Draft Environmental Site Assessment

I must begin by sharing my admiration for the detailed and complete scope of work completed by SCS Engineers. In my personal opinion they have satisfied my hopes that they would be comprehensive, technically sophisticated, scientifically objective, and articulate. Also I think we must admire their patience in participating in such a prolonged and open dialogue with the TAC as was necessary to preserve the integrity and credibility of the project. I do not think the City and its residents could have had a better analysis of the condition of the landfill under any other circumstances. In this context please review my following comments on the draft report, some of which may be relevant, some marginal, and some merely editorial.

1. I assume that because this is still a "draft" that there is no "Executive Summary." One is definitely necessary as important pertinent findings are scattered throughout and are hard to find in such a long and complex text. This should include such items as the absence of pertinent COPCs, the presence and importance of methane, of arsenic, etc., the results of the HRAs and so on.
2. There should be some discussion of future land use possibilities in the Executive Summary which must be developed in cooperation with the TAC and this topic should have its own section in the Report itself.
3. Section 1.6 ff should be rewritten by someone who uses English as their native language. For instance on page 9 all three paragraphs of 1.6 have words and phrases which are very confusing to me (such as "overall regulatory requirements...in the context of," or "encompass potential requirements," or "what may be considered to be required." On page15, the largest paragraph consists of essentially one sentence which takes up 19 lines of text and also makes no sense to me.
4. Section 6.1.2.2 and Map 6.2 show that at some places the cover over the landfill is only 1.5 feet deep. If the TAC agrees with the recommendations in Sections 10.3 and 11.0 we should initiate a discussion about funding and implementation.
5. What are the implications of the newly established fact (Section 6.1.2.3 and Section 6.2.1.4) that the Eastern part of Sea World's parking overlaps the Western part of the landfill? The observed values of methane in subsurface gas were very high in this area (see Section 6.4.1, 7.2.5 and Maps 6.2 and 6.4) and discussed in Section 8.4.4? I would tend to agree with the prolonged discussion in Section 10.4, but the TAC should discuss the conclusions specifically.
6. What does it mean on page 103 (Section 6.5.1) to say "Human Health Risk Assessment and Ecological Risk Assessment...has rarely been applied to old or new landfills?"
7. Section 6.7.3.1 contains some very significant observations which must be highlighted

or repeated elsewhere, to wit: "Overall the analytical data show that either significant degredation of HVOCs has occurred...." And "there is a potential for future releases to occur from sealed drums should they remain intact." By the way I am confused about the results of the Geophysical Survey (Section 4.4) did it identify any indications that drums existed or was it even capable of doing so?

8. Sections 6.6, 7.2 and associated maps and Section 4.7.3 ff all seem very important to me in so far as landfill waste was/is located up to 10 feet below ground water level. The conclusions in Section 10.5 are very brief and to the point since no VOCs or SVOCs were found in ground water. It would seem appropriate to include here some (?speculative) discussion of whether possible elution of COPCs occurred in the past.

9. Section 7.2 refers to COPCs in sediment and soil summarized in Section 6.3 but that Section says "the surface soils of the Site contain no COPCs.." These two Sections are not consistent, especially since 7.2 contains a long list of COPCs.

10. It comes to mind that the glossary of appreviations might be put at the beginning of the report on a fold out page. Also it seems to me that certain tables might better be integrated with the text.

11. I was finally motivated to use the CDROM to look up Appendix 8.3 when the RfDs were discussed in Section 8.4.1. After reviewing the Appendicies. I think both 8.2 and 8.3 with their tables and toxicities deserve to be placed early in the main body of the Report itself to explicitly lay out for the lay reader the complete list and types of COPCs that were looked for and the standard accepted toxic dose levels. These Appendicies are duplicative of Table 9.1 which although it refers only to COPECs should be omitted and COPECs should be notated in 8.2 and 8.3. Again I would note that as a reader my attention was not brought to consider the initial list of COPCs or COPECs until Section 8.4.1 or 9.2.3.2.

12. Before I forget to mention it the maps are completely great and wonderful

13. Sections 8.4.2 and 8.6.1 raise the importance and impact of extremely high mercury levels found in landfill soil. From the discussion of this finding at the TAC I seem to recall this is actually based on data from Woodward and Clyde. This should be discussed further. Is this observation reliable? Why was it accepted? It should explicitly be compared to SCS's mercury data. Do we have any idea where the mercury came from? What was its actual chemical form? Are any other data from Woodward and Clyde accepted into this Report?

14. Section 8.5 discusses the Precautionary Principle. The second paragraph needs a grammatical correction: "In other words, if some activity (or for example, a chemical *exposure or use)* may potentially...."

I would suggest there is a fifth component of the precautionary principle which is omitted from the draft text and it is important to add it. I would state it as follows:

"Calculation of potential risk can only be made using currently accepted parameters of empiric or estimated toxicity.(See listing in Appendix 8.3) It is understood that such levels for many COPCs are adjudicated through a process that involves both scientific research (which, at least initially, may be conducted largely by the manufacturers of the substance itself) and a regulatory process that must involve political and economic concerns. The parameters used in this Report are generally accepted today. They are nonetheless to some extent remain uncertain. In addition, the analytical data described in any analysis must consist of the best available sampling of the site under investigation. Any sampling method is subject to technical, financial, and statistical limitations which may induce error or omissions. (See Sections 8.5.5.1.and 9.4) The Precautionary Principle recognizes that due to advances in technology, innovative and ongoing scientific studies, and recalculation of political and economic concerns that toxicities, RfDs, TRVs, LOAELs, and NOAELs etc. are revised from time to time and are often made more stringent. (One may reflect on recent discussions about lead, mercury, and phthalates, for

example). Thus the Precautionary Principle instructs us to make conservative recommendations about future use and exposure which should nonetheless be consistent with the results of this study"

15. In my opinion the first sentence in Section 8.5.1 expresses a misconception about the Precautionary Principle and should be omitted. It is not restricted to a process for analyzing only new and future possible risks. It does apply to the MB landfill as an alternative way to conceptualize human and environmental risk assessments, given whatever data is developed empirically. With regard to Section 8.5.3 this should be revised if my suggested addition (No.14 above) is integrated into the narrative.

16. Section 9.2.8 refers to "the presence of COPECs identified above..." Table 9.1 should be referenced.

17. I cannot find where TRVs are defined and TRVs are not referenced in the acronym list (13.0).

18. In Section 9.3.2.2. TRVs are said to come from toxicity studies based on reproductive endpoints. Are there not some based on carcinogenicity or other endpoints?

19. Section 10.2 says "New COPCs have been discovered as presented in Table 4.7. I cannot find Table 4.7. It would also seem that each "new" COPC identification would require some explication.

20. All parts of Sections 10 and 11should be discussed in detail by the TAC. We should set a process for funding and implimentation of any adopted recommendations.

21. Section 11 should include some recommendations about future land use and or landscaping possibilities.

Dr. Jeoffry B. Gordon

We are most appreciative of your general comments.

1. We agree that an Executive Summary is a very important part of the report. We will revise the draft executive summary after responses to this document have been received so that it discusses all the important pertinent findings of the report, including the absence of pertinent COPCs, the presence and importance of methane, of arsenic, etc., the results of the HRAs and so on, as you suggest.

2. As discussed in the TAC meeting on October 21, 2005, as consultants we can only state that there may be issues to be addressed if certain types of construction are proposed. It should be noted that any change in land use requires input from the City of San Diego Local Enforcement Agency (LEA) and the Regional Water Quality Control Board (RWQCB).

3. This section will be rewritten to improve the clarity.

4. This is already being addressed by the TAC.

5. The implications are that the parking lot will act as an impermeable (almost) cap that will serve to retard (if not stop) vertical gas migration. This is the likely reason that higher methane values were encountered in this area. We anticipate that the TAC will address this issue during the coming months.

6. This statement will be revised to indicate that HRAs are usually applied to landfills when associated with CEQA and potential landfill development and/or control system permitting.

7. We will include the observations from section 6.7.3.1 in the conclusions section of the report. As discussed in section 4.4.3.1, the geophysical survey indicated some areas of stronger magnetic response and described possible sources including random occurrences of metallic debris, linear features related to the parking lot lighting and utilities, and cultural features (utilities, fencing, etc.) associated with the roadways. It is not possible to tell whether metallic debris represents drums or other metallic objects disposed of in the landfill.

8. As you indicate, discussion of whether possible elution of COPCs occurred in the past would indeed be speculative. Given the lack of detailed information about what was placed in the landfill and at what time in its development, it is very difficult to provide an opinion on what did, or did not, happen to COPCs that might, or might not, have been present in the deepest parts of the waste. However, the evidence that we do have suggests that waters from large flood events tend to flow through the landfill from south to north, and raise the elevation of the water thus causing temporary saturation of waste at shallower levels.

9. The sentence at the end of section 6.3 is erroneous and will be amended by adding "..... at concentrations greater than the California Human Health Screening Levels." As can be seen in Table 4.14, in addition to the metals, there are isolated detected concentrations of acetone and two polynuclear aromatic hydrocarbons in the surface soil samples. Section 7.2 also includes discussion of soil samples collected from soil borings at greater depths within the landfill, whereas Section 6.3 only discusses surface soils and sediments, which explains the discrepancy in the number of COPCs mentioned. The list provided in Section 7.2 will be rechecked for accuracy.

10. The glossaries provided are specific to Sections 8 and 9. Is the intention of this comment to suggest that you would like an enlarged glossary? If so, we would be pleased to discuss what you would like it to contain and how we can make it most useful to readers. With regard to tables, we included in the text those that were of a size that we felt was appropriate. We think that it is more useful to include all the larger tables of data in one section after the text.

11. Normally a COPC list is provided in an HRA after screening against background. For the Mission Bay HRA there was no screening against background so any chemical detected was included in the HRA and the normal COPC list was omitted. However, in this case the table of toxicity criteria can be used to indicate the final list of chemicals included in the HRA as proposed in the comment. The HRA text will be revised to reference the toxicity criteria tables for the HRA COPC list.

    Determining the initial list of COPECs requires first conducting a couple of screening steps. These steps need to be discussed in the text before the reader can be referred to the list so that the reader understands how the initial list was developed. The ERA text explictly refers the reader to tables showing the initial (Table 9.1) and final (Table 9.3) COPEC lists.

12. Thank you for your kind words.

13. Because high concentrations of mercury were found in several instances at the Mission Bay landfill we do not consider these to be spurious results. There is no reason to believe it is unreliable. Mercury was measured as total mercury. Due to the long history of the landfill and multiple types of users, combined with poor historical records, it is impossible to say, with any degree of certainty, what the source of the mercury is. All soils metal data generated by Woodward Clyde were used in the report.

14. The minor editorial change will be made. A paraphrased version of your proposed text will be added to the discussion of the Precautionary Principle (PP).

15. A key component of the PP is that when a new chemical is manufactured or a new project is proposed that may impact human health or the environment, less-risky alternatives to the new chemical/project should be evaluated. The purpose is to see if one of these alternatives might be able to fulfill the need without the added risks of

the new chemical/project. These alternatives need to be evaluated before the new chemical is manufactured and released into the environment or the new project is built.

The source of the health risks in this case is the landfill. The PP can certainly be applied to the way in which health risks are evaluated but it cannot be applied in terms of helping to decide an alternative to the original source of health risks since the landfill has already been built. However, section 8.5.3 will be revised to incorporate a version of the suggested text as this suggestion is certainly applicable to the risk assessment.

16. The minor editorial change will be made.

17. TRVs are defined in Section 9.1. It will be added to the acronym list.

18. Carcinogenicity is not an endpoint used for ecological receptors at this point in time. Reproductive endpoints are used because they tend to be the most sensitive indicators of toxicity and have the potential to affect wildlife populations, not just individual animals.

19. This should refer to Table 4.5 (on page 39), not Table 4.7.

20. This is already being addressed by the TAC.

21. As discussed during the TAC meetings, this is outside our scope as consultants, and will be addressed by the Mission Bay Park Master Plan and by the oversight of the LEA and RWQCB.

>>> "Pulver, Barry" <Barry.Pulver@sdcounty.ca.gov> 09/01/05 12:48 PM >>>
Ray,

Last night I started reviewing the draft report. I will provide the TAC with my comments when I have completed my review and will not piecemeal my comments. However, I came across one item that I would like to have resolved sooner rather than later.

Table 4.22 lists and compares groundwater test results to the PHGs, Ocean Plan, and PRG limits. The left side of the table lists the PHGs, Ocean Plan, and PRG limits in units of ug/l (parts per billion). The right side of the table lists the groundwater test results with metal concentrations in units of mg/l (parts per million). For tables that compare concentrations the units should be the same, so I started converting the metal concentrations from mg/l to ug/l. The conversion factor is 1000 times so the 0.004 mg/l Arsenic concentration for the sample collected from well MBW1 would be 4 ug/l, which exceeds the listed PHG of 0.0040 ug/l (the arsenic concentration for this sample was not bolded to indicate that it exceeded the most stringent limit). As you recall, yesterday Councilwoman Frye made the point that the PHG and PRG is for drinking and tap water and not directly applicable to groundwater and/or surface waters of Mission Bay. However, converting the listed 0.010, 0.016, and 0.012 Arsenic concentrations for wells MBW3, MBE4, and MBW5 from mg/l to ug/l results in concentrations that exceed the listed Ocean Plan limit of 8 ug/l, which could be considered a more relevant standard.

This apparent error in unit conversions is carried over to Table 4.23 where the sample results collected by SCS using the "clean hands dirty hands" sampling method and ultra low concentration testing to the test results obtained by EMCON. For example, the table lists the Arsenic concentration for well MBW1 as 0.040 ug/l (using the value of 0.004 mg/l from Table 4.22 the concentration should be 4 ug/l).

I have not been able to plow through the appendices to find the lab results to find out if the values listed on Table 4.22 are correct, nor have I checked to see what values were plugged into the risk assessments. Because there has been at least one newspaper story about the study if the error on the conversions per Tables 4.22 and 4.23 effect any of the conclusions it should be resolved as soon as possible.

Per the draft report the groundwater monitoring wells have only been sampled once. Does EMCON sample these wells as part of the semi-annual groundwater sampling? If they do it would be helpful to have those results.

Regards,

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